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Via Electronic Filing

Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Re: Written Ex Parte Filing, Terrestrial Use of the 2473-2495 MHz Band for Low-Power Mobile Broadband Networks, IB Docket No. 13-213

Dear Ms. Dortch:

I am submitting this letter for two primary reasons: 1) to summarize the primary issues that appear to remain in this proceeding and, 2) to help crystallize certain arguments of record in favor of the Commission moving forward with its proposed rules in this matter.[1]

I. Background

This proceeding began with a Petition for Proposed Rulemaking filed by Globalstar on November 13, 2012 (the "Petition").[2] In the Petition Globalstar requested that the FCC consider new Federal Rules under 47 C.F.R. § 27 that would enable it to offer a terrestrial

[1] These comments are offered for the Commission's review and represent the personal views and opinions of the undersigned counsel. This letter does not represent the views of undersigned counsel's firm, or any of its clients, or necessarily any particular stakeholder or party in this proceeding.
[2] *See* FCC Rule Making Procedure No. RM-11685.

low power service ("TLPS") using Ancillary Terrestrial Component ("ATC") authority within both its licensed spectrum (2483.5 MHz to 2495 MHz) and adjacent unlicensed spectrum (2473 MHz to 2483.5 MHz). The unlicensed spectrum is at the upper end of the 2.4 GHz Industrial, Scientific and Medical ("ISM") spectrum band. Together, these licensed and unlicensed portions of the ISM band are referred to throughout this proceeding as "Channel 14." Channels 1 through 13 of the ISM band occupy 2401 MHz to 2483 MHz. Within public, unlicensed "Wi-Fi," there are currently three non-overlapping channels (1, 6 and 11) as discussed extensively in the record. For purposes of this letter, the "upper half" of Channel 14 will be referenced when discussing that portion which is licensed to Globalstar for its MSS, and the "lower half" of Channel 14 will be referenced when discussing that portion residing in the unlicensed ISM band.

On February 19, 2014, the Notice of Proposed Rule Making ("NPRM") in this proceeding was published in the Federal Register. Instead of agreeing to Globalstar's requested Part 27 framework, the FCC proposed rules under 47 C.F.R. § 25. The Commission preliminarily determined that it would be in the public interest, as part of the ATC authority granted to Globalstar, to loosen the out of band emissions ("OOBE") restrictions currently in place for unlicensed operations in the lower half of Channel 14. While Globalstar's TLPS would have to comply with the loosened restrictions (which are consistent with Wi-Fi operations in Channels 1 through 11), unlicensed operations in the lower half of Channel 14 would be required to continue complying with existing OOBE requirements. In this regard, the stricter OOBE requirements practically applicable in the lower half of Channel 14 were put in place to protect Globalstar's licensed MSS in the upper half of Channel 14. The Commission further stated that

managed deployment of TLPS may provide a means for self-interference protection of Globalstar's MSS.[3]

In the NPRM the Commission also observed that interference concerns were expressed during the Petition phase of this proceeding. These comments were filed by parties such as Wi-Fi Alliance ("WFA"), Bluetooth Special Interest Group ("Bluetooth SIG"), WCA, WISPA, Microsoft, and EIBASS, among others. A theme developed during the Petition phase by opposition parties was that TLPS had not been tested enough to alleviate their generally stated concerns about interference. In response, in the NPRM the Commission encouraged stakeholders to submit technical analyses to support their concerns.[4] The Commission appeared to place the burden of proof on the parties opposed to its proposed rules in this regard. In any event, little or nothing of significant evidentiary value from opposition stakeholders made its way into the record until the FCC itself arranged for joint demonstrations at its own facilities in March of 2015.[5] Subsequent to that set of tests or demonstrations, and perhaps with the support of the Commission and/or staff, Globalstar conducted two more lengthy demonstrations of TLPS.[6] While Bluetooth SIG and WFA participated in the FCC/OET demonstrations, Globalstar convincingly showed that these stakeholders failed to make good faith efforts to run real world

[3] *See* Published NPRM, Federal Register, Vol. 79, No. 33 at 9450
[4] *Id.* at 9447 ("To the extent that any party asserts that Globalstar's low-power network may cause interference or substantially constrain other operations, the Commission encourages the party to submit technical analyses detailing their concerns, as well as a detailed assessment of any associated costs.")
[5] The TLPS demonstrations took place at FCC facilities, Office of Engineering and Technology ("FCC/OET").
[6] *See* Letters from Barbee Ponder, General Counsel and Vice President Regulatory Affairs, Globalstar, to Marlene Dortch, Secretary, FCC, IB Docket No. 13-213, describing a Chicago college campus demonstration (September 10, 2015), and describing the Washington School for Girls deployment (November 18, 2015).

demonstrations and report the results at all, or at least in a reasonably objective manner.[7] Bluetooth SIG refused to submit for the record the data and audio files from its tests. These Bluetooth SIG data and audio files, to date and without explanation, fail to appear in the record. Meanwhile, the three Globalstar demonstrations consistently showed no user perceptible interference to Bluetooth or other unlicensed operations.

Basic logic dictates that TLPS users are just as likely as unlicensed users to rely on Bluetooth devices, including peripherals such as keyboards, mice, speakers, and other devices such as heart rate monitors, video game controls and hearing aids. Therefore, Globalstar has substantial commercial incentive to ensure that TLPS users have an overall, high quality experience when operating on Channel 14, and this includes the incentive to ensure that the customers' other wireless devices operate robustly when TLPS is in use. In fact, this has proven out in both the Chicago college campus TLPS demonstration and the TLPS operations at the Washington School for Girls.

It appears that the Commission is considering a phased in deployment schedule for TLPS, perhaps at least partially as a means to answer the continuous calls for more testing during this proceeding. In addition, and more recently based on the record over the past month, the Commission appears to be considering a "use or share" requirement, or at least some type of commitment to a future "use or share" proceeding for Channel 14.

[7] See Letter from Regina Keeney, Counsel to Globalstar, to Marlene Dortch, Secretary, FCC, IB Docket No. 13-213, (March 30, 2015) describing Globalstar demonstration at FCC/OET and attaching a report by Roberson and Associates, LLC.

II. Summary of Positions on Primary Issues

1. The Commission should affirm and proceed with its preliminary determinations in the NPRM to revise the OOBE limits for TLPS at the upper end of the unlicensed ISM band.

2. The Commission should not capitulate to the calls by potential competitors to put Globalstar through "testing Hell"[8] and instead should allow a controlled deployment designed to ensure continued compatibility of TLPS with incumbents in accordance with existing rule-based expectations for operations in Channel 14 with regard to interference protection.

3. If the Commission is considering a "use or share" requirement for Channel 14, as opposed to merely a commitment to a future "use or share" proceeding, then it should implement that framework as an integrated part of TLPS under the new rules.

III. Discussion

A. OOBE Requirements for TLPS

Under the proposed rules, Globalstar holds no special privileges in the unlicensed spectrum vis-a-vis any unlicensed operator when it comes to interference protection. The NPRM holds Globalstar to the same interference-related obligations as any other operator using the lower half of Channel 14, including the main users of that portion of spectrum, Bluetooth devices. But, for TLPS to be viable for low power, mobile broadband operations the OOBE restrictions near the upper end of the unlicensed ISM band are proposed to be loosened. This

[8] This terminology was used by Harold Feld, Senior Vice President, Public Knowledge, in a Letter to Marlene Dortch, Secretary, FCC, IB Docket No. 13-213 (January 8, 2016).

amounts to what has been referred to on the record by certain filers and even one Commissioner as "special rights" or "preferential access."[9]

The crux of this issue has not changed since the day the Petition was filed, nor since the day in September of 2013 that three Commissioners voted unanimously in favor of the NPRM. The question has always been, how do the "public interest benefits" realized by TLPS stack up against any "costs" or detriments to the public? The Commission designed the NPRM to develop a record on issues related to this question so that the Commission could ultimately confirm, reject or modify its proposed rules. The evidence of record clearly supports either confirming the proposed rules or at least adopting the proposed rules while making modifications and providing reasonable safeguards to incumbents and, at the same time, ensuring that a new entrant can provide further innovation, competition and, perhaps most importantly, capacity to the mobile broadband needs of this country. The Commission should not allow itself to be led in the direction of a dogmatic decision against any or all "preferential access" or "special rights" regardless of the rationale underlying that access and regardless of how little detriment and how much public benefit has been evidenced of record. Instead, the Commission should make a final determination on whether the limited "preferential access" in the form of revised OOBE limits

[9] Public Knowledge/Open Technology Institute ("PK/OTI") early in this proceeding argued that Globalstar should not be granted a "windfall." (*See* Letter from Harold Feld, Senior Vice President, Public Knowledge to Marlene Dortch, Secretary, FCC, IB Docket No. 13-213 (Dec. 20, 2013)). Later in the proceeding, apparently after being persuaded that the public interest would be served by the demonstrated additional throughput in Channels 1, 6, and 11, as well as perhaps other reasons, PK/OTI became conditionally supportive of the Commission's proposed rules. On June 2, 2016, FCC Commissioner Pai publicly announced his "no" vote in this proceeding and cited "special rights" and "preferential access" as the reason, although the public never saw the draft R&O on which he voted "no" and, during the Open Meeting press conference later in the month, he clarified that this was only "part of" his reasoning. The public vote and comment from a single Commissioner, prior to adoption of any decision by the Commission, appears to legally prejudice Globalstar. At the very least, it paints Commission process in poor light.

presents any real and practical cost or detriment to the public and, if so, how that cost or detriment compares to the benefits conferred to the public as operations proceed under the new rules. None of us has a crystal ball, and the determination would be much easier if the Commission knew exactly what would happen after promulgation of the new rules. But, with a record developed over almost four years, the evidence shows that the public interest benefits very likely far outweigh the cost or detriment to the public. No stakeholder has submitted any evidence of actual "costs" from a monetary standpoint. Stakeholders have also failed to show real and practical detriment if the proposed rules were to be adopted. Instead, stakeholders continue to make allegations of "possible" concerns, "potential" concerns and the like. The time has come to reject naked, unsupported assertions such as these. Globalstar has done the heavy lifting in this proceeding by conducting demonstrations and filing extensive reports concerning those demonstrations. Various stakeholders have criticized the demonstrations and reports, and have essentially sat back with their arms crossed in defiance. But, they failed to counter the demonstrations and reports by Globalstar with their own testing or even objective technical analyses on this well-known 802.11 technology and this well understood 2.4 GHz spectrum band.[10]

The evidence of record is convincing. The Commission was correct when it initially proposed loosening the OOBE requirements applicable at the upper end of the ISM band

[10] It is noted that Microsoft filed an application for Special Temporary Authority ("STA") on May 11, 2016 to test within Channel 14, and the FCC granted that application on May 23, 2016. Microsoft has not filed any test results to date and has not asked the Commission to delay its decision on TLPS until it submits test results or analyses from this STA. The Commission should not delay its decision based on this tardy STA of Microsoft. The record does contain technical reports from hedge funds, Gerst Capital and Kerrisdale Capital, and these reports were relied upon in a cursory fashion in the filings of other stakeholders. But, it does not appear that these reports carry evidentiary weight, otherwise industry stakeholders presumably would have joined in full support with these hedge funds on the record, or at least attempted to replicate or expand on such testing and submit results of their own.

for purposes of TLPS operation. Doing so will allow TLPS operations to proceed under a conventional and proven "Wi-Fi" type regime and under 802.11 protocol while remaining compatible with existing unlicensed and licensed operations in the same and adjacent spectrum bands. Doing so will also allow public Wi-Fi throughput to increase significantly in TLPS locations as demonstrated by Globalstar. Unlicensed operations, and the portion of TLPS proposed for the lower half of Channel 14, are not entitled to protection from harmful interference.[11] Nevertheless, Globalstar has committed to use a network operating system ("NOS") for purposes of preventing interference and mitigating interference, among other TLPS management and control functions. As to the level of interference that Globalstar is going to be required to mitigate to, the policy proposed by Public Knowledge is the only one apparent on the record. The policy proposed by Public Knowledge is that a new entrant such as Globalstar, which is granted some "special" privileges or rights relative to unlicensed operations in the same band, should be held to a higher standard of interference related behavior. Public Knowledge specifically states that such a new entrant should not be entitled to destroy the ability of unlicensed users to operate legitimately under the applicable rules. This seems reasonable and appropriate, and is consistent with the Commission's findings in M.C. Dean.[12] Finally, the *Progeny* proceeding and Order appears to be an appropriate template in various respects, but especially on the general concept that licensed and unlicensed operators should be able to work among themselves to ensure that all operations continue to flourish. FCC intervention should be a last resort.[13]

[11] 47 C.F.R. § 15.5.
[12] FCC File No. EB-SED-15-00018428, *In the Matter of M.C. Dean, Inc.*, Notice of Apparent Liability for Forfeiture (Adopted Oct. 28, 2015).
[13] *See* FCC, WT Docket No. 11-49.

At the end of the day, the Commission should move forward with its proposed rules because the public benefits demonstrated on the record far outweigh any demonstrated costs or detriments, and because appropriate controls can be put in place to ensure that TLPS operations continue in a manner fully consistent with that finding.

B. The Continuing Call for Testing

If the Commission moves ahead with a phased in deployment of TLPS, it should guard against putting Globalstar through a continued and uncertain "testing Hell," to use the words of Public Knowledge. Instead, as in the *Progeny* proceeding, it would be appropriate for Globalstar to submit reports on any destructive interference to unlicensed operations caused by TLPS, as well as steps taken to remove or otherwise mitigate the destructive interference. The same should hold true with regard to any "harmful" interference caused by TLPS to adjacent or co-channel licensed operations. All stakeholders were put on notice in the NPRM more than two years ago that technical analyses should be generated if the stakeholder desired to place evidence of record on the issue of interference to its operations or the operations of its constituents. Therefore, to require extensive additional testing and reporting by Globalstar, when the opposition (mainly composed of potential competitors) has refused to support their positions despite their vast technical resources, would be not only inequitable but inapposite to the clear position of the Commission in the NPRM.

Some stakeholders have requested that TLPS sites be open and available during initial TLPS deployment presumably so that good faith testing by these stakeholders might be undertaken. However, any involvement in TLPS deployment sites by third party stakeholders should not interfere with legitimate business interests of Globalstar. In addition, in view of the record of non-participation and non-transparency by various stakeholders when it came to testing

during this proceeding, the Commission should be vigilant and ensure that all future participation by third parties in testing TLPS is undertaken strictly in good faith.

In summary, while deployment of TLPS in a phased in manner appears to be a pragmatic manner of proceeding, it should not be used as an excuse to allow this innovative, new competitor to the mobile broadband market to continue to get bogged down by competitors with naked or contrived "concerns" of interference.

C. Use or Share Framework in Channel 14

More and more spectrum bands have been mentioned in connection with a "use or share" regime, such as implemented recently in the 3.5 GHz spectrum band.[14] The NPRM did not ask specific questions concerning a "use or share" framework *per se* in Channel 14. However, the NPRM did ask questions concerning loosening the OOBE limits with regard to Channels 12 and 13 for purposes of expanding public "commons" use of those channels in the ISM band. And, various parties including Bluetooth SIG, Google, Public Knowledge and OTI, have suggested that the Commission consider opening Channel 14 to the public. Bluetooth SIG's call for opening Channel 14 to the commons did not square with its simultaneous statement that TLPS operations alone in that channel would present significant interference with "low energy" Bluetooth devices. To date, it is not clear whether Bluetooth SIG wants *no other new entrant* in the Bluetooth "safe haven" of 2473 MHz – 2483.5 MHz or wants *all other possible new entrants* in that "safe haven."[15] Its arguments on the record are, at best, illogical

[14] *See* FCC, GN Docket No. 12-354, *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550 – 3650 MHz Band*, Order on Reconsideration and Second Report and Order (Adopted Apr. 28, 2016).

[15] One could argue that Bluetooth operations actually have "special rights" to the lower half of Channel 14 under current rules because the innovation of Bluetooth technology has made efficient use of this portion of the ISM band when Wi-Fi operations cannot currently use this portion of the ISM band by cost effective means. Likewise, Globalstar's NOS and technology

and, at worst, irreconcilably conflicted. Google and PK/OTI argued that the Commission should at least commit to a future proceeding which would provide notice and opportunity to comment on whether it is in the public interest to open Channel 14 to public, unlicensed operations. Presumably, Google and PK/OTI realized (without stating as much) that several stakeholders would be justified to demand a say in whether such an action would be in the public interest. Namely, for example, incumbents such as BAS and BRS/EBS operators, not to mention MSS operator Globalstar, would need a say in whether such action could be taken while protecting them against harmful interference.

More recently, PK/OTI introduced the idea that a sharing arrangement could be implemented within the framework of the TLPS rules and with no need for a further notice and opportunity for comment. In its ex parte letter of June 13, 2016, PK/OTI stated: "[p]ermitting a 'use or share' regime is a logical outgrowth of the Commission's notice on how to allow Globalstar to lease or otherwise provide third parties access under its license." More specifically, the Commission need not provide notice in an NPRM that is coterminous with the final rules.

> An agency's final rule qualifies as the logical outgrowth of its NPRM "if interested parties should have anticipated that the change was possible, and thus reasonably should have filed their comments on the subject during the notice-and-comment period." CSX Transp., Inc. v. 26 Surface Transp. Bd., 584 F.3d 1076, 1079–80 (D.C. Cir. 2009). By contrast, a final rule fails the logical outgrowthtest and thus violates the APA's notice requirement where "interested parties would have had to divine the agency's

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allows efficient use of this portion of the ISM band under the proposed rules while also being compatible with other wireless operations. In reality, using the terms "special" or "preferential" in a derogatory sense with regard to Bluetooth operations or the proposed TLPS operations in Channel 14 is inappropriate. Quite to the contrary, with respective unintended and intended assistance from the Commission, these two compatible services can help ensure the highest and best use of this upper portion of the ISM band.

> unspoken thoughts, because the final rule was surprisingly distant from the proposed rule." Id. at 1080.
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> *Agape Church, Inc. v. FCC*, 738 F.3d 397, 411 (D.C. Cir. 2013) (quoting EDWARDS, ELLIOTT & LEVY, FEDERAL STANDARDS OF REVIEW 195 (2d ed. 2013)).

If the FCC embeds the unlicensed "shared" operations into final rules for TLPS as suggested by PK/OTI, the unlicensed operators may be considered at least analogous to "customers" or "authorized users" of Globalstar in that they remain under the control of Globalstar's NOS just like any TLPS authorized operator. Under such a framework, the unlicensed operations would be subject to the same rules and controls implemented by the Report and Order in this proceeding. A sharing arrangement such as this would fall squarely within the issues addressed by the NPRM. In short, any comments directed to the rules proposed for TLPS operations would necessarily apply to unlicensed "shared" operations that are likewise inextricably tied to those same rules.

PK/OTI acknowledges that Globalstar would have priority access to the upper half of Channel 14 over any unlicensed "shared" operations. And, if Globalstar has not deployed in a given market area (presumably after a time period defined by the Commission), then unlicensed operations could be deployed in that market area subject to all applicable requirements set forth in a TLPS R&O. Those requirements would presumably include specific directives from the Commission to Globalstar with regard to the operation of TLPS through its NOS, including various technical requirements. If the Commission is to avoid the need for a new notice and comment opportunity with regard to opening Channel 14 in some manner to unlicensed operations, then the unlicensed operations must be deployed and controlled in strict accordance with the obligations placed on Globalstar in response to the issues raised in the

NPRM. This would mean that Globalstar must be in a position to ensure that those same obligations are met by any unlicensed "shared" TLPS operations under the rules. On the other hand, if the Commission is considering broader application of "use or share" in Channel 14, then the recent objections by WCA, Microsoft and HIA are well taken, and a new proceeding including notice and comment opportunity would be required.[16]

The Commission likely took similar sharing issues under consideration when drafting and adopting the NPRM in this proceeding, and decided that a general "use or share" arrangement in Channel 14 would not be in the public interest due to the high likelihood of interference to incumbents. Channel 14 certainly cannot be considered, based on current technology, for any sharing regime that does not involve strict control and oversight of any authorized or, possibly, even unauthorized unlicensed operations. A well-controlled and TLPS-centric operation that includes opportunistic public use in areas that otherwise could have been occupied by TLPS operations under the same NOS, would be well within logical expectations when the NPRM was published.

The Commission should ensure that the public interests are best served, while also allowing innovation and competition to flourish, by adopting this new and creative use of Channel 14. A "use or share" framework, if adopted, should be tied into the new rules as suggested by PK/OTI and subject to the same obligations and controls imposed on Globalstar while also not impairing Globalstar's ability to deploy TLPS. This would not only allow Globalstar's TLPS operations to grow, but would progressively increase the throughput of adjacent unlicensed operations in those same areas of successful deployment.

[16] *See, for example,* Letter from Paul J. Sinderbrand and Mary N. O'Connor, Counsel to WCA, to Marlene Dortch, Secretary, FCC, IB Docket No. 13-213 (June 13, 2016).

IV. Conclusion

Over the past three to four years of this pending rule making process, the Commission has made many important, and even more complicated decisions on issues other than whether to adopt its proposed rules for more efficiently using Channel 14 of the 2.4 GHz band for mobile broadband services. It is time for the Commission to move forward in a positive and proactive manner and adopt its rules in a framework that allows a new entrant to provide further competition and further broadband capacity while adequately ensuring continued compatibility for operations in Channel 14 and adjacent bands.

Pursuant to section 1.1206(b)(2) of the Commission's rules, 47 C.F.R. § 1.1206(b)(2), this ex parte notification is being filed electronically for inclusion in the public record of the above-referenced proceeding.

Respectfully submitted,

/s/ Kevin G. Rooney

Kevin G. Rooney